



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/582,939	10/27/2000	Ulrik Pagh Schultz	P-5857	4543
-7590 12/18/2003			EXAMINER	
Michael L Kenaga Rudnick & Wolfe PO Box 64807 Chicago, IL 60664-0807			NAHAR, QAMRUN	
			ART UNIT	PAPER NUMBER
			2124	
			DATE MAILED: 12/18/2003 10	

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/582,939

Applicant(s)

SCHULTZ ET AL.

Examiner

Qamrun Nahar

Art Unit

2124

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 September 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 9.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. This action is in response to the amendment filed on 9/19/03.
2. The IDS submitted on 9/19/03 has been considered.
3. The objections to the specification have been withdrawn in view of applicant's amendments.
4. The rejection under 35 U.S.C. 112, second paragraph, to claim 15 is withdrawn in view of applicant's amendment.
5. Claims 12, 14-16, 18 and 21 have been amended.
6. Claims 12-22 are pending.
7. The objections to claims 12 and 18 are pending.
8. Claims 12-22 stand finally rejected under 35 U.S.C. 102(e) as being anticipated by Siska (U.S. 6,263,429).

Claim Objections

9. Claim 12 is objected to because of the following informalities: "optimised" on line 26 of the claim should be "optimized". Appropriate correction is required.
10. Claim 18 is objected to because of the following informalities: "optimised" on line 14 of the claim should be "optimized". Appropriate correction is required.

Response to Amendment

Claim Rejections - 35 USC § 102

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

12. Claims 12-22 are rejected under 35 U.S.C. 102(e) as being anticipated by Siska (U.S. 6,263,429).

Per Claim 12 (Amended):

The Siska patent discloses:

- a method of compacting an intermediate program consisting of a sequence of standard instructions, used in an on-board system, said on-board system being provided with a memory and a program language interpreter capable of turning the intermediate program into instructions of an object code that can be run directly by a microprocessor (“The present invention preferably provides a technique for compressing a program utilized by an embedded processor without significantly degrading the performance of the embedded processor. Additionally, the compression technique of the present invention may preferably be utilized on individual code modules, linked executables, non-embedded processor programs, and any other sequence of lines of code.” in column 5, lines 33-39; column 11, lines 57-67 to column

12, lines 1-67; Fig. 2; Fig. 4, item 400 “UNCOMPRESSED PROGRAM”; and Fig. 5B; microprocessors are commonly referred to as embedded processors; that is, microprocessors are relied upon to perform numerous and varied functions for portable objects, such as personal digital assistants, smart phones, and etc. Therefore, Siska does disclose an on-board system. Siska also discloses an intermediate program, see Fig. 4, item 400 “UNCOMPRESSED PROGRAM”. Siska also discloses a program language interpreter, see column 11, lines 57-67 to column 12, lines 1-67 and Fig. 5B.)

- **a) searching through said intermediate program for identical sequences of successive standard instructions** (“As shown in the flow chart in Fig. 3a, the compression method of the present invention preferably begins with searching a program for identical sequences of lines of code, sequences of lines of code which include repeated patterns, and the like using standard sequence identification techniques (step 300).” in column 7, lines 42-47)

- **b) subjecting said identical sequences of successive instructions to a comparison test to find a function, based on at least the number of occurrences of these sequences in said intermediate program, that is higher than a reference value and, if the test returns a positive response, for each identical sequence of successive standard instructions which satisfies said test step** (“Numerous sequence identification schemes are commonly known in the art, the present invention does not address the method of finding sequences of lines of code, hence any method, including the use of wildcards, greedy algorithms, or the like may be suitably utilized in the present invention to identify sequences of lines of code which occur with enough

Art Unit: 2124

frequency to justify compression. ... Once the examination of the program for common sequences is accomplished, one of the collections is selected (step 301). The basis of this selection is preferably that replacement in the program of each sequence in the collection by a microcall results in the greatest compression of all the collections which might be so selected.” in column 7, lines 49-56; column 7, lines 64-67 to column 8, lines 1-5)

- **c) generating a specific instruction by defining a specific operating code and associating said specific operating code with the sequence of successive standard instructions which satisfied said test** (“After a collection is identified in step 301, preferably one incidence of the sequence of lines of codes from the identified collection is preferably designated as a microroutine (step 302).” in column 8, lines 6-9)

- **d) replacing each occurrence of each sequence of standard successive instructions in said intermediate program with said specific operating code associated with it to obtain a compacted intermediate program, consisting of a series of standard instructions and specific operating codes** (“If the microroutine selected in step 302 fits within the MCA 216, then the microroutine is suitably saved in the MCA 216 (step 305). Additionally, each sequence of lines of code in the collection is replaced in the program by a microcall to the saved microroutine (step 306).” in column 8, lines 24-28)

- **e) storing in said memory an execution table which enables a reciprocal link to be established between each specific operating code inserted and the sequence of successive**

Art Unit: 2124

standard instructions associated with the latter, said program language interpreter being adapted to determine whether a read code value corresponds to a standard type code or to a specific type code, making it possible to execute specific instructions, by calling on said execution table, thereby enabling the memory space occupied by said compacted intermediate program to be optimized by storing only one occurrence of said identical sequences of successive standard instructions in said memory (“The cache memory 206 preferably includes a Micro Code Area (“MCA”) 216 (within which microroutines are suitably stored) and a Microroutine Contiguity Table (“MCT”) 218. The non-cache memory 208 preferably contains storage locations for at least one program 210 which can be further subdivided into individual lines of code interspersed with microcalls 214. ... More specifically, in the compressed program 504 when the processor encounters the first microcall at line number 508, the processor preferably transfer control to the first line, M1, 510 in the Microcode area 507 (i.e., the first line in Microroutine #1 504).” in column 7, lines 24-33; column 11, lines 57-67 to column 12, lines 1-67; and Fig. 5B).

Per Claim 13:

The Siska patent discloses:

- wherein said function is also a function of the size of each identical sequence of successive instructions (column 8, lines 9-23).

Per Claim 14 (Amended):

Art Unit: 2124

The Siska patent discloses:

- wherein in order to compress a plurality of intermediate programs, said method also consists in: storing said execution table relating to at least one compacted intermediate program and, for every additional intermediate program subjected to a compaction process (column 13, lines 10-24), reading said stored execution table (column 13, lines 10-20 and lines 38-43), running the compaction process for every additional program, taking account of the specific codes and instructions stored in said execution table (column 13, lines 21-37).

Per Claim 15 (Amended):

The Siska patent discloses:

- a method of running a compacted intermediate program obtained by applying a compaction method, said compacted intermediate program consisting of a succession of standard instructions and specific operating codes stored in the memory of an on-board system (column 5, lines 33-39; column 13, lines 10-37; Fig. 4, item 400 "UNCOMPRESSED PROGRAM"; microprocessors are commonly referred to as embedded processors; that is, microprocessors are relied upon to perform numerous and varied functions for portable objects, such as personal digital assistants, smart phones, and etc. Therefore, Siska does disclose an on-board system. Siska also discloses an intermediate program, see Fig. 4, item 400 "UNCOMPRESSED PROGRAM".)

- recognizing in said memory the existence of a stored execution table containing at least one sequence of successive instructions associated with a specific operating code by means of a reciprocal link (column 13, lines 10-20 and lines 38-52)

- calling up a command, via a program language interpreter, to read the successive standard instructions or specific operating codes of said compacted intermediate program, in the presence of a specific operating code: retrieving said sequence of successive instructions associated with said specific operating code from the memory by means of a read instruction (column 11, lines 57-67 to column 12, lines 1-67; column 13, lines 38-43; and Fig. 5B), in the presence of a standard instruction, commanding the execution of said standard instruction by means of a read instruction (column 13, lines 28-37 and Fig. 5B)

- said program language interpreter being adapted to determine whether a read code value corresponds to a standard type code or to a specific type code, making it possible to execute specific instructions, by calling on said execution table (column 11, lines 57-67 to column 12, lines 1-67; and Fig. 5B).

Per Claim 16 (Amended):

The Siska patent discloses:

Art Unit: 2124

- wherein if a sequence of successive instructions associated with a specific operating code is called up, the current value of a program counter is incremented in a stack associated with the specific operating codes and a program pointer points to the first instruction of said sequence of specific instructions, after which, on running an instruction to end the sequence of specific instructions, said program counter is decremented and the execution process continues starting with the next instruction or specific operating code (column 13, lines 43-61).

Per Claim 17:

The Siska patent discloses:

- wherein the stack associated with the specific operating codes and the stack associated with the standard instructions are a single stack (column 13, lines 43-52).

Per Claim 18 (Amended):

This is a system version of the claimed method discussed above, claim 12, wherein all claim limitations also have been addressed and/or covered in cited areas as set forth above.

Thus, accordingly, this claim is also anticipated by Siska.

Per Claim 19:

The Siska patent discloses:

Art Unit: 2124

- wherein said execution table comprises at least: a file of successive sequences corresponding to said specific instruction codes (column 13, lines 38-43), and a table of specific instruction codes and addresses at which said specific instruction codes are embedded in the table of successive sequences (column 13, lines 43-52).

Per Claim 20:

The Siska patent discloses:

- wherein said file of successive sequences corresponding to said specific instruction codes and said table of specific instruction codes are stored in a programmable memory of said on-board system (column 13, lines 10-20).

Per Claims 21 (Amended) & 22:

These are compaction system versions of the claimed method discussed above (claims 12 and 13), wherein all claim limitations also have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, these claims are also anticipated by Siska.

Response to Arguments

13. Applicant's arguments filed on 9/19/03 with respect to claims 12-22 have been fully considered but they are not persuasive.

In the remarks, the applicant argues that:

Art Unit: 2124

a) Claims 12, 15, 18 and 21 have been amended for clarification. More particularly, these claims recite now the way that the program language interpreter distinguishes standard codes and specific codes for executing specific instructions when the compacted program is run.

This clarification has been brought to these independent claims in order to stress the importance of the content of the execution table.

More particularly, the cited document SISKKA does not really teach an execution table which enables a reciprocal link to be established between each specific code and the sequence of successive standard instructions. The program interpreter according to the invention is therefore arranged for reading the content of the execution table and for decompacting the program previously stored, in order to run the program.

The cited document SISKKA fails to teach an execution table which enables a reciprocal link between the specific code and the standard code for the mere reason that a program language interpreter is not provided in SISKKA as admitted in the office action (first lines of page 8 of the office action).

On the other hand, the JAVA interpreter of WILKINSON is merely a conventional interpreter.

On the opposite, the interpreter according to the invention makes it possible to execute a compacted program and, therefore, has to carry out the decompacting of such a program (see for example the "decompression table" of Figure 4 and in page 4, line 19 of the application as filed). More particularly, a test step 2003 in Figure 4 is run in order to determine whether a code value belongs or does not belong to "standard codes" (see also page 16, lines 29-34). For guidance, the specification further indicates that if a negative response is received to test 2003 (the read code

Art Unit: 2124

corresponds to an instruction of the standard type), the interpreter checks whether the value of this code corresponds to an end of the sequence.

Therefore, the program interpreter according to the invention is not of a conventional type and does not derive from WILKINSON or SISKKA, even taken in combination, for a man skilled in the art. The execution table which is read by the program interpreter is not suggested by SISKKA and cannot correspond to the MICT 218 provided in SISKKA.

Therefore, the subject-matter of the independent claims 12, 15, 18 and 21, as now clarified, is new and non-obvious with regard to SISKKA and WILKINSON.

Examiner's response:

a) Examiner strongly disagrees with applicant's assertion that Siska fails to disclose the claimed limitations recited in claims 12, 15, 18 and 21. Siska clearly shows each and every limitation in claims 12, 15, 18 and 21.

Siska discloses a method of compacting an intermediate program consisting of a sequence of standard instructions, used in an on-board system, said on-board system being provided with a memory and a program language interpreter capable of turning the intermediate program into instructions of an object code that can be run directly by a microprocessor (column 5, lines 33-39; column 11, lines 57-67 to column 12, lines 1-67; Fig. 2; Fig. 4, item 400 "UNCOMPRESSED PROGRAM"; and Fig. 5B; microprocessors are commonly referred to as embedded processors; that is, microprocessors are relied upon to perform numerous and varied functions for portable objects, such as personal digital assistants, smart phones, and etc. Therefore, Siska does disclose an on-board system. Siska also discloses an intermediate

Art Unit: 2124

program, see Fig. 4, item 400 "UNCOMPRESSED PROGRAM". Siska also discloses a program language interpreter, see column 11, lines 57-67 to column 12, lines 1-67 and Fig. 5B. That is, Siska does disclose the functionality of the applicant's program language interpreter. Anticipation does not require an *ipsissimis verbis* test, i.e., identity of terminology is not required. In re Bond, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990).).

Siska discloses a program language interpreter being adapted to determine whether a read code value corresponds to a standard type code or to a specific type code, making it possible to execute specific instructions, by calling on said execution table (column 7, lines 24-33; column 11, lines 57-67 to column 12, lines 1-67; and Fig. 5B; Micro Code Area ("MCA") 216 (within which microroutines are suitably stored) is interpreted as an execution table, where the execution table is called upon when running the compacted program. Since applicant asserts that the program language interpreter is arranged for reading the content of the execution table and for decompacting the program previously stored, in order to run the program and is not a conventional interpreter, the Examiner is now relying upon Siska for a program language interpreter as defined by the applicant.).

Furthermore, in response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., "the interpreter checks whether the value of this code corresponds to an end of the sequence") are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

In addition, see the rejection above in paragraph 12 for rejection to claims 12, 15, 18 and 21.

Conclusion

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

15. Any inquiry concerning this communication from the examiner should be directed to Qamrun Nahar whose telephone number is (703) 305-7699. The examiner can normally be reached on Mondays through Thursdays from 9:00 AM to 6:30 PM. The examiner can also be reached on alternate Fridays.

Art Unit: 2124

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kakali Chaki, can be reached on (703) 305-9662. The fax phone number for the organization where this application or processing is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

QN
December 4, 2003

Kakali Chaki
**KAKALI CHAKI
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100**